

Notice of Allowability

Application No.

10/726,654

Examiner

SOPHIA VLAHOS

Applicant(s)

VIERO ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/14/2007.
2. ☒ The allowed claim(s) is/are 1-44.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Drawings

1. The drawing (Fig. 3) was received on 7/31/2007. This drawings is acceptable.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Majid S. AlBassam (54,749) on 7/26/2007.

The application has been amended as follows:

In the Claims (received on 6/14/2007):

Claim 1, line 26 (after the preamble): delete phrase -- examined -- before phrase "block", insert phrase --- re-formed --- before phrase "block".

Claim 22, line 10 (after the preamble): delete phrase -- and for performing -- before phrase "normalization", insert phrase --- to perform --- before phrase "normalization".

Line 24 (after the preamble): delete phrase -- examined -- before phrase "block", insert phrase --- re-formed --- before phrase "block".

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Claim 43, line 17 (after the preamble): delete phrase -- examined -- before phrase "block".

Line 20 (after the preamble): delete phrase -- examined -- before phrase "block", insert phrase --- re-formed --- before phrase "block".

Claim 2, line 11 (after the preamble): delete phrase -- values -- before phrase "is exceeded" insert phrase --- value --- before phrase "is exceeded".

Line 20 (after the preamble): the phrase "combined signal of the examined block, and thus the examined block" has been changed to "combined signal of the block, and thus the block".

Claim 23, line 18(after the preamble): delete phrase -- examined -- before phrase "block".

Line 19 (after the preamble): delete phrase -- examined -- before phrase "block".

Claim 44 line 15 (after the preamble): the phrase "combined signal of the examined block, and thus the examined block" has been changed to "combined signal of the block, and thus the block".

Allowable Subject Matter

3. The following is an examiner's statement of reasons for allowance: The prior art of the record fails to teach or suggest alone or in combination: A method of limiting a combined signal, the method comprising: comparing the power or amplitude values of each block with the set threshold value to find out whether the combined signal needs to be limited; and when the threshold value is exceeded, decorrelating the block where the threshold value was exceeded and a predetermined number of channelization codes, which have a pre-determined spreading factor, and performing normalization to determine first weighting coefficients for the channelization codes or channelization code groups, the first weighting coefficients being proportional to the power of transmissions directed to pre-determined subscriber terminals; comparing each combination of the first weighting coefficient and the related channelization code with set objectives and determining second weighting coefficients for the downlink transmissions selected as a result of the comparison, the second weighting coefficients being proportional to the power of transmissions directed to pre-determined subscriber terminals; as recited in claim 1 and in combination with other steps of the claim.

Claims 1, 3-4, 6-8, 10-12 are allowed.

The prior art of the record fails to teach or suggest alone or in combination: A transmitter of a radio communications system where a combined signal is limited and an information signal intended for each subscriber terminal is multiplied by a

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spreading factor and weighting coefficient, which is proportional to the power of the transmission directed to the subscriber terminal, and transmissions directed to several different subscriber terminals are combined into a combined signal, the transmitter comprising: a comparing unit configured to compare the power or amplitude values of each block with the set threshold value to find out whether the combined signal needs to be limited; a decorrelating unit configured to decorrelate the block where the threshold value was exceeded and a pre-determined number of channelization codes, which have a predetermined spreading factor, to perform normalization to determine first weighting coefficients for the channelization codes or channelization code groups, the first weighting coefficients being proportional to the power of the transmissions directed to pre-determined subscriber terminals; a second comparing unit configured to compare each combination of a first weighting coefficient and a related channelization code with set objectives and for determining second weighting coefficients for downlink transmissions selected as a result of the comparison, the second weighting coefficients being proportional to the power of the transmissions directed to pre-determined subscriber terminals; and a re-forming unit configured to re-form the block using combinations of the channelization codes and the weighting coefficients that were determined, the weighting coefficients being second weighting coefficients provided that they have been determined, or otherwise first weighting coefficients, and thus the block of the combined signal becomes limited in respect of the power or

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amplitude, as recited in claim 22 and in combinations with other elements of the claim.

Claims 22, 24-33 are allowed.

The prior art of the record fails to teach or suggest alone or in combination:

A transmitter of a radio telecommunications system where a combined signal is limited and an information signal intended for each subscriber terminal is multiplied by a spreading factor and a weighting coefficient, which is proportional to the power of the transmission directed to the subscriber terminal, and transmissions directed to several different subscriber terminals are combined into a combined signal, the transmitter comprising: means for comparing the values of each block with the set threshold value to find out whether the combined signal needs to be limited, means for decorrelating the block where the threshold value was exceeded and a pre-determined number of channelization codes, which have a pre-determined spreading factor, and for performing normalization to determine first weighting coefficients for the channelization codes or channelization code groups, the first weighting coefficients being proportional to the power of the transmissions directed to pre-determined subscriber terminals, means for comparing each combination of a first weighting coefficient and a related channelization code with the set objectives and for determining second weighting coefficients for downlink transmissions selected as a result of the comparison, the second weighting coefficients being proportional to the power of

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the transmissions directed to pre-determined subscriber terminals, means for re-forming the examined block using combinations of the channelization codes and the weighting coefficients that were determined, the weighting coefficients being second weighting coefficients provided that they have been determined, or otherwise first weighting coefficients, and thus the examined block of the combined signal becomes limited in respect of the power or amplitude, as recited in claim 43 and in combination with other elements of the claim.

Claim 43 is allowed.

The prior art of the record fails to teach or suggest alone or in combination: A method of limiting a combined signal, the method comprising: comparing the power or amplitude values of each block with the set threshold value to find out whether the combined signal needs to be limited; and when the threshold value is exceeded, forming a residual signal; searching for channelization codes that are unused at a given time; and decorrelating the residual signal and the unused channelization codes to determine weighting coefficients; forming an estimate of the residual signal by means of the unused channelization codes, the weighting coefficients and one or more vectors selected from the sum vectors corresponding to the unused channelization codes; forming a clipped signal by subtracting the estimate of the residual signal from the combined signal of the block, and thus the block of the combined signal becomes limited in respect of

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the power or amplitude, as recited in claim 2 and in combination with other steps of the claim.

Claims 2, 5, 9, 13-21 are allowed.

The prior art of the record fails to teach or suggest alone or in combination: A transmitter of a radio telecommunications system where a combined signal is limited and an information signal intended for each subscriber terminal is multiplied by a spreading factor and a weighting coefficient, which is proportional to the power of the transmission directed to the Subscriber terminal, and transmissions directed to several different subscriber terminals are combined into a combined signal, the transmitter comprising: a comparing unit configured to compare the power or amplitude values of each block with the set threshold value to find out whether the combined signal needs to be limited; a forming unit configured to form a residual signal a searching unit configured to search for the channelization codes that are unused at a given time and for decorrelating the residual signal and the unused channelization codes to determine weighting coefficients;-a selecting unit configured to select one or more desired vectors from the sum vectors corresponding to the unused channelization codes; an estimating unit configured to form an estimate of the combined signal by means of the unused channelization codes and the selected one or more sum vectors;-a second forming unit configured to form a clipped signal by subtracting the estimate of the residual signal from the combined signal of the block, and

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thus the block of the combined signal becomes limited in respect of the power or amplitude, as recited in claim 23 and in combination with other elements of the claim.

Claims 23, 34-42 are allowed.

The prior art of the record fails to teach or suggest alone or in combination: A transmitter of a radio telecommunications system where a combined signal is limited and an information signal intended for each subscriber terminal is multiplied by a spreading factor and a weighting coefficient, which is proportional to the power of the transmission directed to the subscriber terminal, and transmissions directed to several different subscriber terminals are combined into a combined signal, the transmitter comprising: means for comparing the values of each block with the set threshold value to find out whether the combined signal needs to be limited, means for forming a residual signal, means for searching for the channelization codes that are unused at a given time and for decorrelating the residual signal and the unused channelization codes to determine weighting coefficients, means for selecting one or more desired vectors from the sum vectors corresponding to the unused channelization codes, means for forming an estimate of the combined signal by means of the unused channelization codes and the selected one or more sum vectors, means for forming a clipped signal by subtracting the estimate of the residual signal from

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the combined signal of the examined block, and thus the examined block of the combined signal becomes limited in respect of the power or amplitude, as recited in claim 44 and in combination with other elements of the claim.

Claim 44 is allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sato (U.S. 5,751,705)

Creighton (U.S. 6,529,560)

Frank et. al., (U.S. 6,636,555)

Mimura (U.S. 6,393,005)

Ishida et. al., (U.S. 6,590,906)

McGowan et. al., (U.S. 6,931,053)

Lundby (U.S. 6,922,389)

Ode et. al., (U.S. 7,012,969)

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Ozluturk et. al., (U.S. 7,164,931)

Nomura (U.S. 7,027,482)

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is 571 272 5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SV

8/10/2007


MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER